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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,076	02/03/2004	Howard F. Bunn	18989-032	5061

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EXAMINER	
NOBLE, MARCIA STEPHENS	
ART UNIT	**PAPER NUMBER**
1632	

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,076	BUNN ET AL.	
	Examiner	Art Unit	
	Marcia S. Noble	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-59 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-59 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-59 are pending.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I-II. Claims 1-5, 9, 11, 12-16, 18-20, 21, 23-25, 31-37, and 45-53, drawn to an (I) in vitro or (II) in vivo method of increasing insulin production or inhibition of pancreatic cell loss/death, comprising contacting pancreatic islet cells with a flavo-heme oxido-reductase polypeptide or an agonist thereof or more specifically Ncb5or polypeptide, classified in classes 435; 514 subclasses 375; 1/2, respectively.

III. Claims 1-5, 9, 11-16, 18-20, 21, 23-25, and 31-53, drawn to an ex vivo method of increasing insulin production or inhibition of pancreatic cell loss/death, comprising contacting pancreatic islet cells with a flavo-heme oxido-reductase polypeptide or an agonist thereof or more specifically Ncb5or polypeptide, classified in class 514, subclass 1/2.

IV-VI. Claims 6-10, 13-18, 20-23, and 25, drawn to an (IV) in vitro, (V) in vivo, or (VI) ex vivo method of increasing insulin production by contacting pancreatic cells with a nucleic acid encoding flavo-heme oxido-reductase or more specifically Ncb5or, classified in class 435; 514; 424, subclass 455; 44; 93.1, respectively.

VII. Claims 28, drawn to a method of decreasing the expression or activity of Ncb5or by administering an antagonist, classified in class 514, subclass 2.

VIII. Claims 28-30, drawn to a method of decreasing the expression or activity of Ncb5or by administering an antisense or RNAi or ribozyme, classified in class 536, subclass 4.

IX. Claim 26, drawn to a method of diagnosing diabetes or a predisposition thereto comprising detecting a mutation in a gene encoding Ncb5or, wherein the presence of said mutation indicated a diagnosis of diabetes or a predisposition thereto, classified in class 435, subclass 4.

X. Claim 27, drawn to a method of diagnosing diabetes or a predisposition thereto, comprising measuring the level of Ncb5or in a patient, wherein a decrease in said level compared to a normal control indicated a diagnosis of diabetes or a predisposition thereto, classified in class 435, subclass 4.

XII. Claim 57 and 58, drawn to a method of identifying an agent that increases insulin production or decreases fat accumulation, classified in class 435, subclass 375.

XIII. Claim 54 and 55, drawn to a pharmaceutical composition comprising Ncb5or polypeptide, classified in class 530, subclass 350.

XIV. Claim 56, drawn to a pharmaceutical composition comprising a Ncb5or nucleic acid, classified in class 514, subclass 44.

XV. Claim 59, drawn to a transgenic mouse comprising a homozygous disruption in a Ncb5or gene, classified in class 800, subclass 18.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I-III are each distinct groups of inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the each group of inventions are different because they have different steps and require different starting materials. The method of group I is an in vitro method that treats cells in culture, whereas group II is an in vivo method that requires administering to a patient which will induce a physiological response. The method of Group III is an ex vivo method, therefore it encompasses treating tissues or cells outside of a subject, however, it requires returning the cells or tissue back to the subject, therefore requires different method steps than the in vitro method of group I or in vivo method of group II.

3. Inventions IV-VI are each distinct groups of inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the each group of inventions are different because they have different steps and require different starting materials. The method of group IV is an in vitro method that treats cells in culture, whereas group V is an in vivo method that requires administering to a patient which will induce a physiological response. The method of Group VI is an ex vivo method therefore it encompasses treating tissues or cells outside of a subject, however, it requires returning the cells or tissue back to the subject, therefore requires different method steps than the in vitro method of group IV or in vivo method of group V.

4. Each of inventions I-III and inventions IV-VI are distinct groups of inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions because they require different starting materials, work through different effects and have different outcomes. Inventions I-III are drawn to protein therapies/treatments, proteins have different biochemical structures than the nucleic acids IV-VI. Proteins exact their effects through different mechanisms than nucleic acids, wherein nucleic acids affect protein synthesis directly whereas proteins exact their effects in a multitude of mechanisms other than acting as a coding sequence for transcription of a RNA or translation of a protein. Treating with proteins require a different method of contact with target cells than nucleic acids as well which requires introduction into the cell.

5. Each of inventions I-VI are distinct inventions from each of inventions VII-VIII. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the distinct groups of inventions are both treatment however, they result in different effects. Groups I-VI administers a flavo-heme oxido-reductase, gene, or agonist thereof to increase the activity of a flavo-heme oxido-reductase, whereas groups VII-VIII administer an antagonist or antisense RNA to inhibit the activity of a flavo-heme oxido-reductase.

6. Inventions VII and VIII are distinct inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different

designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the distinct inventions are both treatments that inhibit NCb5or activity. However, they utilize different starting materials and work through different mechanism. Group VII administers an antagonist, which generally binds and blocks the activity of a receptor, whereas Group VIII administers an antisense nucleotide that blocks transcription.

7. Inventions I-VIII are each distinct from inventions IX-X. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are distinct because they are drawn to methods that have different steps. Groups I-VIII are drawn to methods of treating cells/tissues/ or subjects whereas groups IX-X are methods of diagnosis. Methods of diagnosis involve steps to identify the presents of a disease whereas as methods of treatment use steps to administer a substance to alter the physiology or biology of a subject or target cell.

8. Inventions IX and X are distinct inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are distinct because they utilize different steps. Group IX involve molecular biology techniques such as hybridization assays to determine a mutation in the Ncb5or gene, where as group X measures Ncb5or proteins synthesis or ELISAs.

9. Each inventions I-X are distinct inventions from XI. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different

designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are distinct because they are drawn to methods that have different steps. Group XI is a distinct method from the therapies and diagnostics of I-X because it is drawn to a method of screening for an agent that increases insulin production or decrease fat accumulation. Group XI is a method that involves screening for agents that have a physiological/biological impact, they do not necessarily treat a subject therefore making them different from the methods of treating as claimed in I-VIII and do not identify the present of a disease state which makes them different from diagnostic methods as claimed in IX-X.

10. Inventions XII, XIII, and XIV are each distinct products. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are distinct because they have different structures and components. XII and XIII are drawn to pharmaceutical compositions containing either nucleic acids or polypeptides whereas XIV is drawn to a transgenic animal which is biologically a different entity than a drug. The transgenic animal is used as a model for research or diagnostics were as the drugs are used for treatment. XII and XIII are distinct because XII is comprised of polypeptides which have a different biochemical structure than the nucleic acid of the composition of XIII.

10. Inventions I-XI, drawn to methods, and inventions XII, XIII, and XIV, drawn to products, are related as product and process of use or are unrelated. The inventions

can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the products are not related to the methods of I-XI because the polypeptide or nucleic acid would not be used in these methods of therapy using flavo-heme-oxido-reductase protein or gene. The pharmaceutical products containing the Ncb5or gene or protein could be used in a method of treatment, but also has multiple other uses such as proteins or antigens for the production of antibodies for identifying Ncb5or expression. Similar the nucleic acid of XIII could be used in a method to produce a transgenic animal of group XV, but it again could be used as a probe or for gene therapy or other molecular biology purposes.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia S. Noble whose telephone number is (571) 272-5545. The examiner can normally be reached on M-F 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marcia S. Noble

Valarie Bertoglio
Valarie Bertoglio
Patent Examiner